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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,823	08/05/2004	JONATHAN GUIDRY	19.0355	4822

23718 7590 12/27/2007

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EXAMINER	
LO, SUZANNE	
ART UNIT	**PAPER NUMBER**
2128	

MAIL DATE	DELIVERY MODE
12/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/710,823	GUIDRY ET AL.	
	Examiner	Art Unit	
	Suzanne Lo	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12-15 and 18-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-15 and 18-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08/05/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-10, 12-15, 18-29 have been presented for examination. The Request for Continued Examination submitted on 09/21/07 has been acknowledged.

Claim Rejections - 35 USC § 103

2. **Claims 1-7, 12-14, 18-19, and 24-29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Huang (U.S. Patent No. 6,785,641 B1), or "Huang '41", in further view of Huang (U.S. Patent Application 2005/0015229 A1), or "Huang '29" in further view of Banks ("Software for Simulation").**

As per claim 1, Huang '41 is directed to a method for displaying a graphical representation of bottom-hole assembly (BHA) **(column 16, line 61 – column 7, line 21)** and drill string attached to the BHA **(Figure 12 and accompanying text)** comprising providing source data **(column 10, lines 31-65 and column 6, lines 26-44)** but fails to explicitly disclose parsing the source data to produce BHA graphics data packets corresponding to BHA graphics components, interpreting the BHA data packets to correlate the BHA graphics data packets with BHA graphics components, parsing the source data to produce drill string data packets corresponding to drill string graphics components, and interpreting the drill string packets to correlate the drill string data packets with drill string graphics components.

Huang '29 teaches parsing the source data to produce drilling components graphics data packets corresponding to the graphical components and interpreting the data packets to correlate the component graphics data packets with the component graphic components **([0104])**. Huang '41 and Huang '29 are analogous art because they are both from the same field of endeavor, modeling drilling systems. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the graphical representation method of Huang '41 with the data processing method for graphical display step of Huang

'29 in order to allow the system designer to analyze the drilling system more conveniently **(Huang '29 [0102])**.

The combination of Huang '41 and Huang '29 fails to explicitly disclose using vector graphics, assembling the BHA and drill string using vector graphics components in a vector graphics library, scaling the BHA/drill string graphic, animating the scaled BHA/drill string graphic; and displaying the drill string and BHA using the animated scaled graphic. Banks teaches assembling a simulation using vector graphics components in a vector graphics library **(page 32, Simple++)**, wherein the vector graphics components represent the simulation components **(page 37, Section 6, Features 1, 2, and 5 and page 32, Simple++)**; and selecting a scale and displaying the simulation at a selected scale **(page 37, Section 6, Feature 3)** wherein the parsing and the interpreting the source data further produce data packets including instructions for animation **(page 35, Section 2, 2nd paragraph)**, wherein the assembling further comprises assembling the simulation using vector graphics components that represent simulation components **(page 37, Section 6, 2nd paragraph)**, and animating the displayed simulation components **(page 37, Section 6, 2nd paragraph)**. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the BHA/drill string display method of Huang '41 and Huang '29 with the simulation display method of Banks in order to allow the use of custom made environments **(Banks, page 37, Section 6, 1st paragraph)** to solve any discrete simulation problem **(Banks, page 31, Section 2, 1st paragraph)** including a BHA.

As per claim 2, the combination of Huang '41, Huang '29, and Banks is directed to the method of claim 1, but does not explicitly disclose wherein the BHA source data are in a WITSML data file or a text file. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the BHA source data in a text file in order to provide input data in a standard format to allow compatibility with third party application.

As per claim 3, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 1, wherein the displaying further displays the BHA source data **(Huang '41, column 17, lines 6-8)**.

As per claim 4, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 3, wherein the displayed BHA source data and the displayed BHA are in separate windows **(Huang '41, Figure 12 and accompanying text)**.

As per claim 5, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 1, wherein the parsing and the interpreting the BHA source data further produce data corresponding to well log data **(Huang '41, column 13, lines 3-38)**, and the displaying further displays the data corresponding to the well log data **(Huang '41, column 16, line 61 – column 17, line 8)**.

As per claim 6, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 5, wherein the well log data comprise at least one selected from the group consisting of a weight on bit, a rate of rotation, a rate of penetration, torques experienced by the BHA, drags experience by the BHA, shocks experienced by the BHA, and stresses associated with the BHA components **(Huang '41, column 13, lines 32-37)**.

As per claim 7, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 5, wherein the well log data comprise at least one selected from the group consisting of gamma ray data, nuclear magnetic resonance data, formation resistivity data, formation porosity data, and formation type data **(Huang '41, column 9, lines 5-22)**.

As per claim 13, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 12, wherein the information is included in the BHA source data **(Huang '41, column 16, line 61 – column 17, line 8 and Banks, page 37, Section 6, Feature 5)**.

As per claim 14, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 12, wherein the information is not included in the BHA source data **(Huang '41, column 16, line 61 – column 17, line 8)**.

As per claim 18, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 1, wherein the animating is based on information related to a well trajectory or time-versus-depth data **(Huang '41, column 16, line 61 – column 17, line 8 and Banks, page 37, Section 6, Feature 5)**.

As per claim 19, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 18, wherein the information is included in the BHA source data **(Huang '41, column 16, line 61 – column 17, line 8 and Banks, page 37, Section 6, Feature 5)**.

As per claim 24, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 1, further comprising displaying a borehole surrounding the BHA **(Huang '41, Figure 12 and accompanying text)**.

As per claim 25, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 24, further comprising animating the displayed BHA along the borehole **(Banks, page 37, Section 6, 2nd paragraph)**.

As per claim 26, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 24, wherein the borehole is displayed as cylinder sections **(Huang '41, Figure 12 and accompanying text)**.

As per claim 27, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 26, the cylinder sections of the borehole are displayed in sequence to simulate a drilling process **(Huang '41, Figure 12 and accompanying text)**. Displaying the cylinder sections of the borehole in sequence is inherent to animating the displayed BHA along the borehole.

As per claim 28, the combination of Huang '41, Huang '29, and Banks already discloses the method of claim 27, further comprising animating the displayed BHA to simulate the drilling process **(Banks, page 37, Section 6, 2nd paragraph)**.

As per claim 29, the combination of Huang '41, Huang '29, and Banks is directed to a system for displaying a bottom-hole assembly (BHA) using vector graphics, comprising a processor and a memory, wherein the memory stores a program having instructions for steps of a method with the same limitations as claim 1 and is therefore rejected over the same prior art combination. A processor and memory is inherent to the method of displaying a BHA using vector graphics on a computer screen.

3. **Claims 8-10, 15, 20-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (U.S. Patent No. 6,785,641 B1), or "Huang '41", in further view of Huang (U.S. Patent Application 2005/0015229 A1), or "Huang '29" in further view of Banks ("Software for Simulation") **in further view of Landmark (PROFILE Technical Specification).**

As per claim 8, the combination of Huang '41, Huang '29, and Banks is directed to the method of claim 1, but fails to disclose wherein the displaying further comprises displaying data corresponding to well log data, wherein the well log data are not included in the BHA source data. Landmark teaches displaying well log data which is not included in the BHA source data **(page 1, Section "DIMS Integration", "graphical representation of important information....entered through the DIMS reporting system")**. Huang '41, Huang '29, Banks, and Landmark are analogous art because they are from the same field of endeavor, method for displaying a simulation. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the BHA display method of Huang '41, Huang '29, and Banks with the well log display method of Landmark in order to allow users to view the wellbore equipment configuration at any stage in the life of the well **(Landmark, page 1, Section "DIMS Integration")**.

As per claim 9, the combination of Huang '41, Huang '29, Banks, and Landmark already discloses the method of claim 8, wherein the well log data comprise at least one selected from the group consisting of a weight on bit, a rate of rotation, a rate of penetration, torques experienced by the BHA, drags experience by the BHA, shocks experienced by the BHA, and stresses associated with the BHA components **(Huang '41, column 13, lines 32-37)**.

As per claim 10, the combination of Huang '41, Huang '29, Banks, and Landmark already discloses the method of claim 8, wherein the well log data comprise at least one selected from the group consisting of gamma ray data, nuclear magnetic resonance data, formation resistivity data, formation porosity data, and formation type data **(Huang '41, column 9, lines 5-22)**.

As per claim 15, the combination of Huang '41, Huang '29, and Banks is directed to the method of claim 12, but fails to specifically disclose wherein the information is streamed from a well logging operation. Landmark teaches information streamed from a well logging operation **(page 1, Section "DIMS Integration", "graphical representation of important information....entered through the DIMS reporting system")**. Huang '41, Huang '29, Banks, and Landmark are analogous art because they are from the same field of endeavor, method for displaying a simulation. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the BHA display method of Huang '41, Huang '29, and Banks with the information streaming method of Landmark in order to allow users to view the wellbore equipment configuration at any stage in the life of the well **(Landmark, page 1, Section "DIMS Integration")**.

As per claim 20, the combination of Huang '41, Huang '29, and Banks is directed to the method of claim 18, but fails to specifically disclose wherein the information is not included in the BHA source data. Landmark teaches wherein the information is not included in the BHA source data **(page 1, Section "DIMS Integration", "graphical representation of important information....entered through the DIMS reporting system")**. Huang '41, Huang '29, Banks, and Landmark are analogous art because they

are from the same field of endeavor, method for displaying a simulation. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the BHA display method of Huang '41, Huang '29, and Banks with the information streaming method of Landmark in order to allow users to view the wellbore equipment configuration at any stage in the life of the well **(Landmark, page 1, Section "DIMS Integration")**.

As per claim 21, the combination of Huang '41, Huang '29, Banks, and Landmark already discloses the method of claim 20, wherein the information is streamed from a drilling operation **(Landmark, page 1, Section "DIMS Integration", "graphical representation of important information....entered through the DIMS reporting system")**.

As per claim 22, the combination of Huang '41, Huang '29, and Banks discloses the method of claim 18, but fails to specifically disclose wherein the animating further displays data related to one selected from formation data, borehole data, and BHA data. Landmark teaches wherein animating displays data related to one selected from various data **(Landmark, page 2, Section "Object picking")**. "). Huang '41, Huang '29, Banks, and Landmark are analogous art because they are from the same field of endeavor, method for displaying a simulation. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the BHA display method of Huang '41, Huang '29, and Banks with the display method of Landmark in order to allow users to view the wellbore equipment configuration at any stage in the life of the well **(Landmark, page 1, Section "DIMS Integration")**.

As per claim 23, the combination of Huang '41, Huang '29, Banks, and Landmark already discloses the method of claim 22, wherein the data selected from the formation data, the borehole data, and the BHA data is streamed from a drilling operation **(Landmark, page 1, Section "DIMS Integration", "graphical representation of important information....entered through the DIMS reporting system")**.

Response to Arguments

4. Applicant's arguments filed 09/21/07 have been considered but are moot in view of the new grounds of rejection.

5. In response to Applicant's argument that Huang '41 is not directed to displaying the BHA, Applicant is further directed to Figure 12, a graphic display of a drilling string with a BHA attached.

Conclusion

6. The prior art made of record is not relied upon because it is cumulative to the applied rejection. These references include:

1. U.S. Patent No. 4,794,534 issued to Millheim on 12/27/88.

2. U.S. Patent No. 6,801,197 B2 issued to Sandstrom on 10/05/04.

3. U.S. Patent No. 6,760,665 B1 issued to Francis on 07/06/04.

4. U.S. Patent No. 7,003,439 B2 issued to Aldred et al. on 02/21/06.

5. U.S. Patent Application Publication 2003/0074139 by Poedjono on 04/17/03.

6. U.S. Patent No. 6,263,339 B1 issued to Hirsch on 07/17/01.

7. U.S. Patent No. 7,302,373 B2 issued to Fleury et al. on 11/27/07.

8. U.S. Patent Application Publication 2003/0078682 A1 published by Tezuka et al. on 04/24/03.

7. All Claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suzanne Lo whose telephone number is (571)272-5876. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571)272-2297. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Suzanne Lo
Patent Examiner
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/SL/
12/20/07

KAMINI SHAH
SUPERVISORY PATENT EXAMINER